REPORT DOCUMENTATION PAGE Dist: A

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE September 1, 1994	3. REPORT TYPE AND DATES COVERED 5-1-92/6-30-94 Final Technical Report

4. TITLE AND SUBTITLE Statistical Theory and Reliability (u)	5. FUNDING NUMBERS 61102E
6. AUTHOR(S) Dr. Asit P. Basu	AFOSR F49620-92-J-0371

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) University of Missouri, Columbia, MO 65211	8. PERFORMING ORGANIZATION REPORT NUMBER AFOSR-TR· 94 0750 Missouri TR-1

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Air Force Office of Scientific Research 110 Duncan Avenue Suite B115 Bolling AFB, DC 20332	10. SPONSORING/MONITORING AGENCY REPORT NUMBER F49620-92-J-0371 AFOSR

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED	12b. DISTRIBUTION CODE A UL

13. ABSTRACT (Maximum 200 words)

Here we submit the final report for research carried out at the Department of Statistics, University of Missouri-Columbia during the period October 1, 1992 – July 31, 1994. During this period the Principal Investigator (PI), A. P. Basu, along with his collaborators considered a number of problems in reliability theory. A. P. Basu edited the research monograph "Advances in Reliability" (1993), which has been published by North-Holland. Six refereed papers also were published. The titles of these papers are given below.
1. Life Testing and Reliability Estimation with Asymmetric Loss Function
2. On a test for exponentiality against Monotone Failure Rates
3. Bayesian Approach to Some Problems in Life Testing and Reliability Estimation
4. Characterizations of a Family of Bivariate Exponential Distributions
5. Bayesian Reliability of Stress-Strength Systems
6. Some Problems of "Safe Dose" Estimation
Some of the research areas are of interest to researchers at Rome Laboratory, Griffiss Air Force Base, New York.

14. SUBJECT TERMS Statistics, Reliability, Accelerated Stress-Strength Model, Testing		15. NUMBER OF PAGES
		16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT

19941201 105

PI Name (Last First MI) Basu, Asit P.
Institution University of Missouri-Columbia
Contract/Grant No. F49620-92-J-0371

A. Publications in peer-reviewed professional journals and refereed book chapters during the reporting period, 1 October 1992 through 30 September 1993.

<u>Book Edited</u>:

Basu, Asit P., Editor,

ADVANCES IN RELIABILITY, North-Holland, Amsterdam, 1993.

<u>Book Chapters</u>:

1. Klein, John P. and Goel, Prem K., Editors, Survival Analysis: State of the Art, Kluwer Academic Publishers, Dordrecht, 1992.

   ●Basu, A. P., Life Testing and Reliability Estimation with Asymmetric Loss Function.

2. Sen, Pranab K. and Salama, Ibrahim A., Editors, Order Statistics and Nonparametrics: Theory and Applications.

   ●Basu, A. P., On a test for exponentiality against Monotone Failure Rates.

3. Goel, Prem, K. and Iyengar, N. S., Editors, Bayesian Analysis in Statistics and Econometrics, Springer-Verlag, New York, 1992.

   ●Basu, A. P., Bayesian Approach to Some Problems in Life Testing and Reliability Estimation.

4. Basu, A. P., Editor, Advances in Reliability, North-Holland, 1993.

   ●Basu, A. P., Characterizations of a Family of Bivariate Exponential Distributions.

5. Basu, A. P., Editor, Advances in Reliability, North-Holland, 1993.

   ●Basu, A. P., Bayesian Reliability of Stress-Strength Systems.

6. Cothern, Richard C. and Ross, Phillip N., Editors, Environmental Statistics Assessment and Forecasting.

   ●Basu, A. P., Some Problems of "Safe Dose" Estimation.

B. Number of additional researchers working with the Principal Investigator

Faculty one, A. P. Basu

Postdocs	0
Graduate Students	1
Other	0

C. Professional honors received by all of the above listed contributors

Asit P. Basu was elected <u>Fellow</u> of the following societies:

1. American Association for the Advancement of Science, 1987
2. American Statistical Association, 1983
3. Institute of Mathematical Statistics, 1983
4. Royal Statistical Society, England, 1974
and also was elected
5. <u>Member</u> of International Statistical Institute, 1987.